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U.S. Department
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Animal and Plant
Health Inspection
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Veterinary Services

January 1992

Foreign Animal Diseases of Livestock and Poultry



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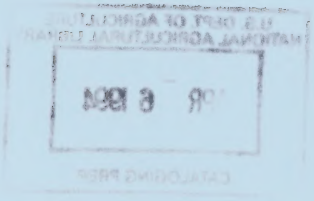


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FOREIGN DISEASES OF LIVESTOCK AND POULTRY
Revised January 1992

INTRODUCTION

This annotated report alphabetically lists 61 diseases of livestock and poultry, and four fish diseases, considered foreign to the United States. A brief description of each disease is included. The list supercedes one published in 1988[1].

Information on foreign diseases of fish was provided by The National Fish Health Research Laboratory, U.S. Department of the Interior, Kearneysville, WV 25430[2].

Disease names that both appear in lists A and B of the Office International des Epizooties (O.I.E., Paris) and represent diseases foreign to the United States are included in this report[50,51].

FOREIGN DISEASES

African horsesickness, a highly fatal viscerotropic viral disease of equines, is caused by a virus of the genus orbivirus and transmitted by biting midges. The clinical forms of the disease are dominated by respiratory distress, colic, and pronounced swellings of the head and neck[3].

African swine fever is caused by a virus of the genus Iridovirus and transmitted by direct contact, fomites, and Ornithodoros ticks. The subacute and chronic forms of the disease are characterized by pulmonary consolidation, fluid in body cavities, and inapparent carriers. The acute form of this disease is characterized by pronounced hemorrhage of internal organs, enlarged hemorrhagic spleen, marked reddening of skin and mortality of up to 100 percent of swine in affected herds[4].

Akabane of cattle is caused by a virus of the genus Bunyavirus, and transmitted by biting midges and possibly mosquitoes. The presence of fetal antibodies in fetuses of infected cattle has suggested Akabane virus could be the cause of abortion, epidemic arthrogryposis, and hydranencephaly in fetuses and young cattle[5].

Avian influenza (see fowl plague)

Avian salmonellosis caused by phage type 4 Salmonella enteritidis is a communicable disease of chickens, especially broilers, characterized by reduced growth rates, increased culling rates, weakness, septicemia, and sometimes severe death losses in affected flocks[6,7]. Egg laying chickens may be infected inapparently, resulting in the presence of the organism in eggs[8].

Babesiosis, a febrile, tick-borne disease caused by sporozoan parasites of the genus Babesia, is characterized by extensive erythrocytic lysis leading to anemia, icterus, hemoglobinuria, and sometimes death[9].

Bovine babesiosis is caused by Babesia bigemina, B. bovis, B. divergens, B. major, or B. species, transmitted by ticks of the genera Boophilus, Ixodes, and Rhipicephalus.

Porcine babesiosis is caused by B. trautmanni (Russia and Tanzania) and B. peroncitoi (Italy).

Ovine and caprine babesiosis are caused by B. motasi or B. ovis.

Besnoitiosis of cattle, goats, wildebeests, impala, and kudu, is a protozoal disease caused by Besnoitia besnoiti (Sarcocystis besnoiti, Gastrocystis besnoiti, Globidium besnoiti, Isospora besnoiti)[10]. In cattle, typical signs include fever, photophobia, and anasarca, followed by seborrhea, alopecia, and sometimes death. Early lesions may include whitish, elevated pseudocysts in the cornea and nasal musosa. Inapparently infected domestic and wild cats can carry and transmit the parasite.

Bluetongue of sheep, cattle, and goats is caused by viruses of the genus Orbivirus and transmitted by biting midges. Serotype 1 and serotypes 3 through 9, 12, 14 through 16, and 18 through 24 are exotic. Sheep are usually affected by feverwith respiratory distress and congestion of the muzzle, lips, and ears. In severe cases, signs include a swollen, cyanotic tongue. Cattle may be inapparently affected or may have signs resembling those in sheep, including erosions of the muzzle, tongue, gingivae, and dental pad[11].

Bovine petechial fever, caused by the rickettsia-like organism, Ehrlichia ondiri, suspected to be transmitted by arthropods, is characterized by decreased milk production in affected herds, petechial hemorrhages in the ventral surface of the tongue and in the vagina, and a course ranging from inapparent to fatal[12].

Bovine spongiform encephalopathy is an afebrile neurological disease of adult cattle characterized by gradual onset of abnormal motor nerve control, abnormal posture, development of violent behavior and heightened sensory perception, progressive course, decreased milk production in lactating cows, weight loss despite continuing appetite, and death. Although the cause is unknown, some evidence supports the possibility of an agent identical to the cause of scrapie in sheep[44].

Contagious bovine pleuropneumonia, caused by Mycoplasma mycoides mycoides, is characterized by pneumonia, pleuritis, and classical "marbled" lung. Transmission is by discharges from the coughing of sick or recovered carriers[3]. There is no known transmission to goats.

Contagious caprine pleuropneumonia, caused by Mycoplasma mycoides capri, is characterized by pneumonia and pleuritis, with variegated appearance of lung tissue due to the presence of different stages of hepatization and interlobular edema[3]. There is no known transmission to cattle.

Contagious equine metritis, characterized by copious mucopurulent vaginal discharge in affected mares within a few days after breeding, is caused by the bacterium Taylorella equigenitalis[13].

Egg drop syndrome of chickens is characterized by decreased rate of egg production in affected flocks, and caused by adenovirus of the genus Aviadenovirus[14].

Diseases Characterized by Encephalitis:

Borna, caused by an unclassified slow virus, is characterized by meningoencephalomyelitis, primarily of horses, sheep, and goats, manifested by ataxia and paralysis of the tongue[52]. Of the two forms of the disease that have been recognized, the encephalitic form predominates over the myelitic.

Equine encephalosis, caused by a virus of the genus Orbivirus, has been described as an acute fatal disease manifested by excited behavior, incoordination, and fever[15,16].

Israel turkey meningoencephalitis, caused by a virus of the genus Flavivirus, is characterized by progressive paralysis and 10 to 20 percent mortality in affected flocks[47].

Japanese encephalitis, a mosquito-borne disease of swine, horses, and humans is caused by a virus of the genus Flavivirus, and characterized by tremors, ataxis, fever, and rapidly fatal course; stillbirths, mummified fetuses, and weak newborn piglets; and in horses by signs ranging from transient fever, anorexia, and jaundice, to incoordination, staggering and falling, and recovery in about 5 days[3,17]. About 5 percent of affected horses develop high fever, demented or violent behavior, and die.

Louping ill, a nonfatal, tick-borne disease of sheep, caused by a virus of the genus Flavivirus is characterized by a peculiar leaping gait, impaired locomotion, and hyperexcitability. Hosts include cattle, horses, swine, and humans[3].

Teschen disease, a severe contagious encephalomyelitis of swine, caused by porcine enterovirus the genus Enterovirus, and characterized by ascending paralysis, progressing to flaccid paralysis[18].

Venezuelan equine encephalomyelitis of horses and humans caused by a mosquito-borne virus of the genus Alphavirus, is characterized in horses by lethargy, incoordination, braced stance, difficulty in swallowing, chewing movements, coma, and death[45].

Ephemeral fever of cattle is caused by a virus of the family Rhabdoviridae, and transmitted by insect vectors, primarily biting midges. Fever, stiffness, lameness, and quick recovery characterize the disease[19].

Epizootic lymphangitis of horses, caused by the fungus Histoplasma farciminosum, is characterized by skin lesions that usually begin with nodules, then progress to rosette formations, ulcers, and enlargement of regional lymph nodes, sometimes with conjunctivitis, keratitis and sinusitis[20].

Foot-and-mouth disease of cloven-hoofed animals is caused by viruses of the genus Aphthovirus and characterized by fever, and vesicles in the mouth, nose, feet, and teats[3].

Fowl plague (highly pathogenic avian influenza), is a highly fatal generalized disease of chickens, caused by viruses of the genus Influenzavirus[21,22].

Getah of horses, characterized by lameness and swelling of the lower legs, is caused by a virus tentatively classified in the genus Alphavirus. The virus is suspected to be arthropod-borne by mosquitoes, including Aedes vexans and Culex tritaeniorhynchus[23].

Glanders of horses, and occasionally humans and cats, is characterized by rhinitis, coughing, nosebleeding, and skin ulcers, and is caused by Pseudomonas mallei[24].

Goat pox and **sheep pox**, are caused by antigenically distinct viruses of the genus Capripoxvirus, and characterized by papules, vesicles, and pustules on exposed body surfaces, often with a high mortality rate[3, 25].

Goose hepatitis (Derszy's disease), caused by a virus of the genus Parvovirus is characterized by watery white diarrhea, runting, locomotor abnormalities, nasal and ocular discharge, and high mortality rate in goslings[24].

Heartwater of sheep, goats, and cattle, characterized by copious fluid in the pericardial sac, is caused by Cowdria ruminantium, and transmitted by Amblyomma ticks[46]. In the acute form of the disease, signs may resemble strychnine poisoning or tetanus.

Hemorrhagic septicemia (Asiatic), a highly fatal disease of cattle and buffalo, characterized by hemorrhages in many parts of the body and edematous swellings in the throat and neck, is caused by virulent strains of Pasteurella multocida[3,53].

Hog cholera, is caused by a virus of the genus Pestivirus. Highly contagious to swine of all ages, the acute form of this disease is characterized by sudden onset, high mortality and morbidity, and signs including high fever, muscular weakness, cyanosis of the skin, and occasionally, convulsions[26]. Strains of the virus of low virulence cause subacute and chronic forms of the disease that include complications of pneumonia and diarrhea.

Ibaraki of cattle, an acute febrile disease characterized by superficial erosions of mucous membranes, swallowing difficulty, dehydration, emaciation, and death is caused by an insect-borne virus of the genus Orbivirus, which is classified with epizootic hemorrhagic disease of deer[27].

Jembrana disease of water buffalo and Balinese cattle is mentioned provisionally as a foreign disease, even though it has not been characterized completely, because it has been reported as the cause of major "rinderpest-like" death losses in Bali[28]. It is thought to be caused by an unidentified virus, possibly transmitted by arthropods, including the tropical cattle fever tick, Boophilus microplus.

Lumpy skin disease, an acute, highly infectious viral disease of cattle, characterized by the eruption of cutaneous nodules, edema of limbs, and swelling of superficial lymph nodes, is caused by Neethling virus of the genus Capripoxvirus[3].

Melioidosis of swine, sheep, goats, cattle, horses, certain wildlife, and humans, characterized by caseous nodules and abscesses in the lymph nodes and viscera, is caused by Pseudomonas pseudomallei. The disease signs vary from an acute, fatal pneumonia and septicemia, to a variety of signs, including polyarthritis, locomotor dysfunction, cutaneous abscesses, emaciation, and death[48].

Nairobi sheep disease of sheep and goats, caused by a virus of the genus Nairovirus, and transmitted by ixodid ticks, is characterized by an acute gastroenteritis, respiratory distress, and mucoid nasal discharge. Affected ewes may abort[3].

Parafilariasis of cattle, caused by Parafilaria bovicola, is characterized by small bleeding perforations in the skin of the neck and back, which usually occur in the early spring or later in cattle that were exposed to vector flies, Musca spp., during the preceding pasture season[29].

Peste des petits ruminants in sheep and goats resembles rinderpest of cattle and is caused by a virus of the genus Morbillivirus closely related to the virus of rinderpest[3].

Rift Valley fever of cattle, sheep, and humans, caused by an arthropod-borne virus of the genus Phlebovirus, is characterized by high rates of abortion in sheep and cattle, and high rates of mortality in young lambs and calves[30].

Rinderpest of cattle, buffalo, other ruminants, and, occasionally, swine, caused by a virus of the genus Morbillivirus, is characterized by watery, frequently bloody diarrhea, necrosis of the alimentary lining, and "punched-out" erosions of the digestive tract[3,54].

Schistosomiasis of ruminants, caused by Schistosoma bovis, S. mattheei, S. spindale, S. japonicum, and S. indicum, is characterized by signs ranging from loss of body weight to severe diarrhea, anemia, and hematuria[31].

Nasal schistosomiasis of cattle, horses, and buffaloes, is caused by Schistosoma nasalis, characterized by lesions in the nasal cavity but not in the internal organs[32].

Screwworm myiasis, caused by larvae of the fly Cochliomyia hominivorax, is characterized by larvae feeding on living tissues in open wounds of any warm blooded animal host, resulting in weight loss, other signs of morbidity and sometimes death[3].

Sweating sickness is a toxicosis, primarily of calves less than 1 year of age, sheep, goats, and swine, caused by certain strains of Hyalomma truncatum ticks, characterized by generalized moist eczema in calves, but also seen in forms ranging from peracute and fatal to mild or inapparent that may be difficult to clinically differentiate from heartwater, anthrax, and poisoning in calves, and from bluetongue in sheep[49]. In swine, the moist eczema of sweating sickness is usually only seen in the axilla and groin, persisting for 4 to 15 days.

Swine blue eye disease is an acute, febrile viral disease characterized by encephalitis, corneal opacity, high mortality in affected litters of piglets and, sometimes severe central nervous system signs in swine up to 45 kg (100 lbs.) body weight, and reproductive disease in breeding age swine, caused by an unclasssified paramyxovirus[42].

Swine vesicular disease, is caused by a virus serlogically identical with Coxsackievirus B5, and characterized by fever, and lameness due to vesicles and erosions on the feet[33].

Theileriasis of cattle, water buffalo, and African buffalo, caused by Theileria parva, the tick-borne protozoal agent of East Coast fever, bovine theilerosis, African Coast fever, Rhodesian tick fever, Rhodesian redwater disease, or corridor disease, is characterized by swelling of the lymph nodes, emaciation, and high rate of mortality[34]. Corridor disease is endemic in cattle and African buffalo in the corridor between the Hluhlvwe and Umfolozi Game Reserves, Zimbabwe.

Theileriasis of cattle, caused by T. annulata, the tick-borne agent of Mediterranean Coast fever, Egyptian fever, tropical piroplasmosis, and tropical theilerosis, varies its severity from mild and chronic to peracute and fatal, and has been considered one of the most important diseases of cattle in affected geographical regions[34].

Tick-borne fever of cattle, sheep, and goats caused by Rickettsia phagocytophilia, transmitted by Ixodes ricinus (Great Britain) and Rhipicephalus haemaphysaloides (India), is characterized by fever, abortion, muscular stiffness and lameness, loss of body weight, and low mortality rate[35].

Trypanosomiasis--African trypanosomiasis (Nagana) of cattle, caused by Trypanosoma congolense, T. simiae, T. brucei, and T. vivax, which are transmitted primarily by tsetse flies, is characterized by chronic loss of body weight and anemia[3]. Surra, the African trypanosomiasis of horses, cattle, and camels, caused by Trypanosoma evansi, is characterized by anemia and intermittent fever[3]. Dourine of horses, caused by Trypanosoma equiperdum, is characterized by venereal transmission, edema of the limbs and ventral surface of the abdomen, enlargement of lymph nodes, sometimes lameness, and abortion[36].

Velogenic viscerotropic Newcastle disease, a highly contagious, lethal viral disease of chickens, turkeys, and various other birds, is characterized in chickens by respiratory distress, edema of the head around the eyes, and hemorrhages in lymphoid tissues and intestinal wall, and caused by a virus of the genus Paramyxovirus[37].

Vesicular exanthema of swine, caused by a virus of the genus Calicivirus, is characterized by vesicles on the snout, in the mouth, and on the feet[38].

Viral hemorrhagic disease (necrotic hepatitis) of rabbits, suspected to be caused by an unclassified parvovirus, is an acute, highly contagious disease primarily of domestic lagomorphs, characterized by high mortality, liver necrosis, marked congestion and hemorrhages in the lungs, thymus, liver, spleen, kidneys, and other organs[43].

Viral turkey rhinotracheitis is caused by an unclassified virus that may belong to the Paramyxoviridae family, that is suspected to also cause "swollen head syndrome" in chickens[39]. Affected turkeys have ocular and nasal discharges, and respiratory signs. Morbidity often has reached 100 percent and mortality has varied from 5 to 50 percent in affected turkey flocks.

Wesselsbron disease of sheep, cattle, horses, and humans, caused by a mosquito-borne virus of the genus Flavivirus, is characterized in sheep by abortion and high mortality in lambs[40,41,55].

FOREIGN DISEASES OF FISH[2]

Branchionephritis (viral kidney disease) is an acute infection of European eels (Anguilla anguilla) and Japanese eels (Anguilla japonica), caused by a birnavirus related to infectious pancreatic necrosis virus. Clinical signs include body rigidity, retraction of the abdomen, and diffuse hemorrhages on the gills and ventral body surface and at the anal fin. The body cavity contains ascitic fluid, and the kidneys are hypertrophied.

Pike fry rhabdovirus disease is an acute hemorrhagic infection principally of young-of-the-year northern pike (Esox lucius). The virus has also been recovered from other fish species. The disease is caused by a rhabdovirus designated pike fry rhabdovirus. Clinical signs include hydrocephalus, protrusion of the eyes (exophthalmos), and hemorrhagic swelling on the trunk or side of the skull.

Spring viremia of carp (infectious dropsy of carp) is an acute viral disease of common carp (Cyprinus carpio) and perhaps other cyprinids. Carp of all ages can be infected by the causative virus, Rhabdovirus carpio. Clinical signs include darkened color, uncoordinated swimming, protrusion of the eyes (exophthalmos), abdominal distention, inflammation and edema of the vent, and edema and petechial hemorrhage of the internal organs.

Viral hemorrhagic septicemia (VHS) is an acute viral disease principally of rainbow trout (Salmo gairdneri) and brown trout (Salmo trutta), but has occurred in several salmonid and nonsalmonid species. The disease is caused by a rhabdovirus designated VHS virus or Egtved virus. All ages of trout are susceptible to infection, and survivors can become lifelong carriers of the virus. Clinical signs include lethargy, darkened color, abdominal distention, xerophthalmia, and hemorrhages in the eyes, skeletal musculature, and viscera.

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